Development of User-Centered Interfaces to Search the Knowledge Resources of the Virginia Henderson International Nursing Library

Josette Jones, RN, Ph.D, BC, Indiana University, Indianapolis, IN
Marcelline Harris, RN, Ph.D. Mayo Clinic, Rochester, MN
Cheryl Bagley Thompson, RN, Ph.D, University of Nebraska Medical Center, Omaha, NE
Jane Root, Ph.D, Sigma Theta, Tau, International, Indianapolis, IN

ABSTRACT

This poster describes the development of user-centered interfaces in order to extend the functionality of the Virginia Henderson International Nursing Library (VHINL) from library to web based portal to nursing knowledge resources. The existing knowledge structure and computational models are revised and made complementary. Nurses' search behavior is captured and analyzed, and the resulting search models are mapped to the revised knowledge structure and computational model.

BACKGROUND

The original 1979 resolution for Sigma Theta Tau International's Virginia Henderson International Nursing Library called for "a national nursing library resource offering services to nurses and those interested in nursing" and soon after that an additional call for "a national clearinghouse for information regarding nurse researchers and nursing research". Ten years later, the first computer was purchased for the Library, enabling the beginnings of an electronic library. With that development, and the establishment of a database that stored findings of research studies, nursing knowledge was made available in an electronic format (1). In 2001 a "re-visioning the library" meeting was convened and participants framed their vision in the context of the dramatic technology changes that have occurred in the 10 years since the VHINL purchased its' first computer. The call is now to extend the VHINL functions to provide access to global knowledge resources and connections made possible by the World Wide Web, as well as retaining and enhancing the rich legacy of knowledge modeling.

USER-CENTERED INTERFACE DEVELOPMENT

The goal is to develop a "tell and ask" functional interface, where the nurse communicates with the knowledge base by making logical assertions (tell) and posing questions (ask) (2). As a first stage in this development, different user tasks and requirements were captured and analyzed for similarities and differences in search behavior. A prototype interface was developed and feedback on that was obtained from key user groups. A formal knowledge structure that currently exists within the Library was examined, needed expansions identified, and opportunities for a controlled terminology identified. These analyses motivated revisions to the pre-existing data model and the specification of an information model. The goal was that the knowledge structure and data model are complementary, and that both complement the search behavior of users. To this end, an evaluation is planned to evaluate whether the knowledge model as mapped to the search behavior model provides a level of consistency – but not completeness - with respect to logical assertions and reasoning techniques for actual queries.

The poster outlines the knowledge and computational models, the analysis of the search behaviors, and the mapping of the knowledge model to the search behavior. Problems and solutions encountered while integrating conceptual and computational modeling with users' task-specific assertions and queries will be highlighted.

REFERENCES

1. Graves JR. Structuring a knowledge base: the arcs© model. In: B. C, editor. Nursing Informatics: Education for practice. New York, NY: Springer Publishing Company, Inc; 2000.
2. Gruber TR. A translation approach to portable ontologies. Knowledge Acquisition 1993;5(2):199-220.